Remarks/Arguments:

Reconsideration of the application is requested.

Claims 1-21 remain in the application. Claims 1-15 have been withdrawn from consideration.

In the penultimate paragraph on page 2 of the above-identified Office action, claims 16, 17, 19, 20, and 21 have been rejected as being fully anticipated by Dhong et al. (U.S. Patent No. 4,954,854) under 35 U.S.C. § 102.

As will be explained below, it is believed that the claims were patentable over the cited art in their original form and the claims have, therefore, not been amended to overcome the references.

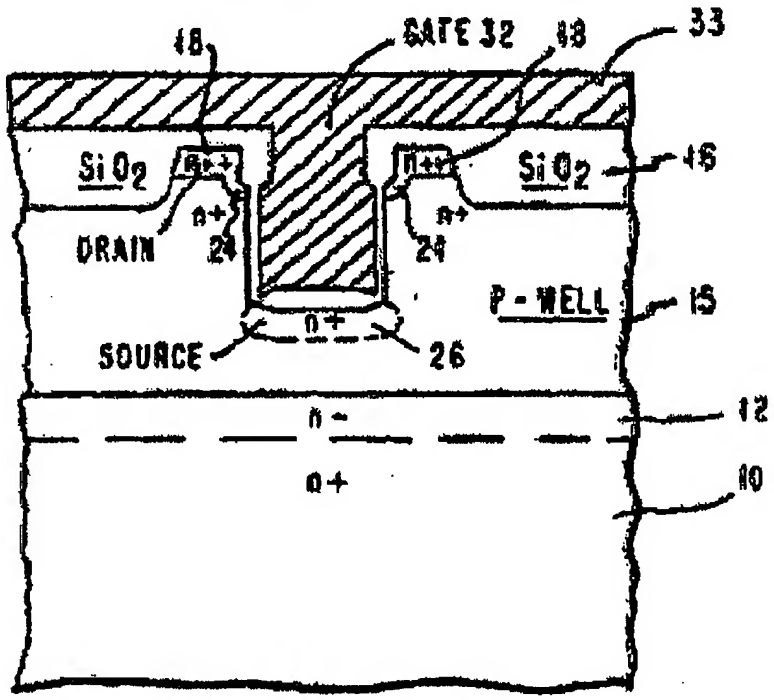
Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 16 calls for, *inter alia*:

the gate electrode having an internal angle α of 90° or less with the insulation structure.

The Dhong reference discloses a trench transistor and fabrication process thereof. Fig. 1 of Dhong, provided below, shows that the transistor of Dhong includes a source junction (26), a drain region (18 and 24), a transfer gate (32), word line (33), and oxide isolation trench regions (16).

FIG. 1



The Examiner stated on page 3 of the Office action that "note in Figs. 1 and 12 that insulation structure 16, 16A bounds gate electrode 32 at the uppermost potion of the trench.

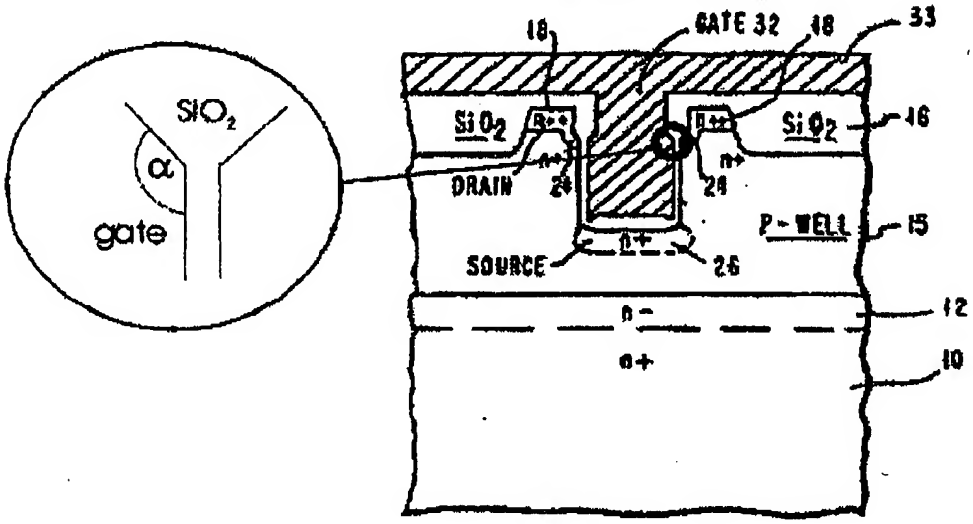
Since the gate electrode 32 is formed flush against insulation structure 16, 16A at the uppermost portion of the trench, as shown in Fig. 1, the gate electrode would have an internal angle α of 0° with insulation structure 16, 16A."

Fig. 1 of Dhong shows that the hatched area includes the transfer gate (32), the word line (33), and the connection part between transfer gate (32) and word line (33). The transfer gate (32) is responsible for controlling the current between source junction (26) and drain region (18, 24). More specifically, the hatched area refers to the transfer gate (32), approximately up to the height of the inclination of the hatched area. According to Fig. 1 of Dhong, the reference number "32" also imprecisely indicates the upper part of the trench. However, the upper part of the trench does not act as a gate, instead it acts as a connection between the word line and the gate. Accordingly, it is applicants' position that the statement by the Examiner that "the gate electrode 32 is formed flush against insulation structure 16 at the uppermost portion of the trench", contradicts the definition of a gate. Therefore, it is applicants' position that claim 16 is not anticipated by Dhong.

Furthermore, the only angle disclosed in Dhong that might possibly be interpreted as the angle according to claim 16,

would be the angle between gate electrode and isolation structure as shown in the modified Fig. 1 of Dhong, provided below. However, the inner angle (α) is larger than 90°. Accordingly, even if Dhong is interpreted in such a manner, claim 16 is not anticipated by Dhong.

FIG. 1



As seen from the above-given comments, the reference does not show the gate electrode having an internal angle α of 90° or less with the insulation structure, as recited in claim 16 of the instant application.

Since claim 16 is believed to be allowable, dependent claims 17, and 19-21 are believed to be allowable as well.

Even though claim 16 is believed to be allowable, the following remarks pertain to the non-obviousness of 16.

Dhong is not concerned with improved current/voltage characteristics due to reduced or avoided bird beak. The topic of an inner angle between gate electrode and insulation is not considered by Dhong. That is, the object and the structure of the present invention is not suggested by Dhong. Accordingly, the present invention is not obvious over Dhong.

It is appreciatively noted from page 3 of the Office action that claim 18 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The claims have not been amended as indicated by the Examiner, as the claims are believed to be patentable in their existing form.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claim 16. Claim 16 is, therefore, believed to be patentable over the art and since all of the dependent claims are ultimately dependent on claim 16, they are believed to be patentable as well.

In view of the foregoing, reconsideration and allowance of claims 1-21 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel respectfully requests a telephone call so that, if possible, patentable language can be worked out.

If an extension of time for this paper is required, petition for extension is herewith made.

Please charge any other fees which might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner & Greenberg P.A., No. 12-1099.

Respectfully submitted,

For Applicant(s)

AKD:cgm

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